THE OHIO STATE ENGINEER

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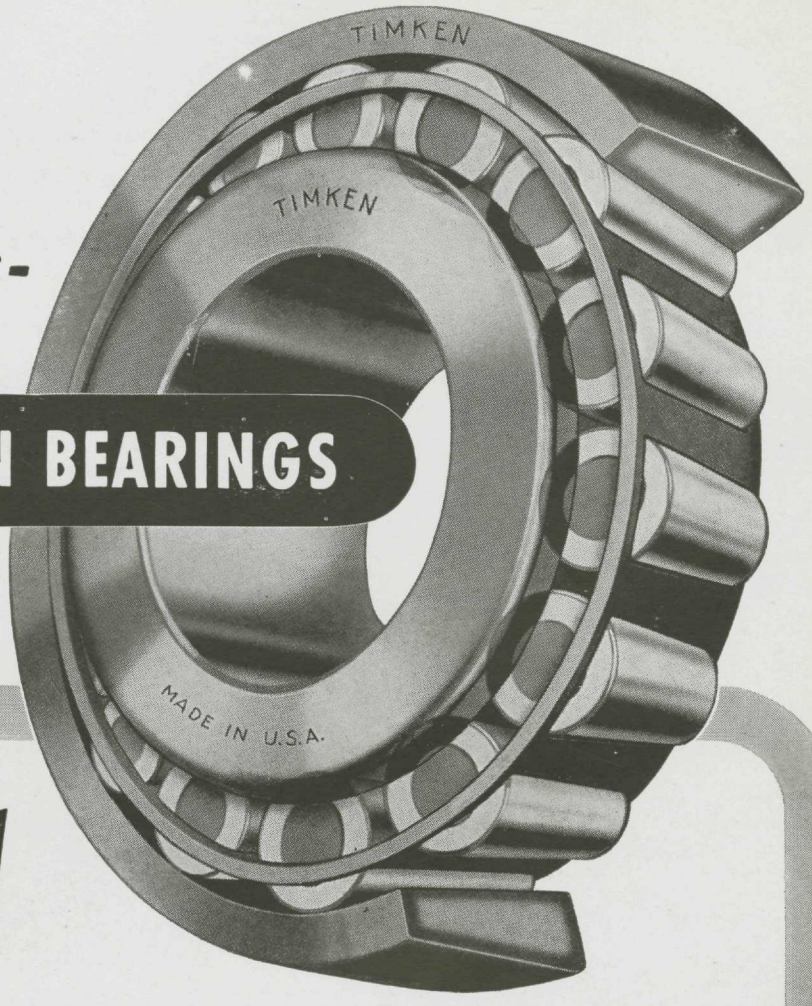
March, 1945

The Best Engineers-

KNOW TIMKEN BEARINGS



load capacity

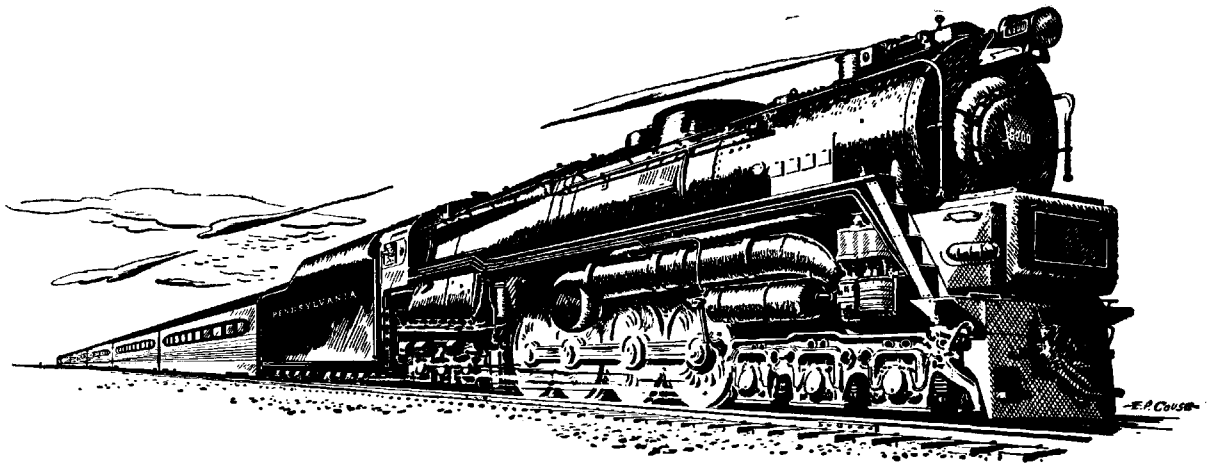
Timken Tapered Roller Bearings can carry all kinds of loads — radial, thrust, or both together. The *amount* of these loads that the bearings can carry is equally important.

The load carrying capacity of Timken Bearings has been established on a thoroughly scientific basis. Each bearing's capacity has been checked and confirmed by extensive laboratory tests and by the field experience gained from the 500,000,000 Timken Bearings in service.

The machine designer may therefore select with confidence the proper size and style of Timken Bearing to best keep wheels, shafts and gears turning smoothly, easily, dependably — free from the threat of friction, wear and misalignment.

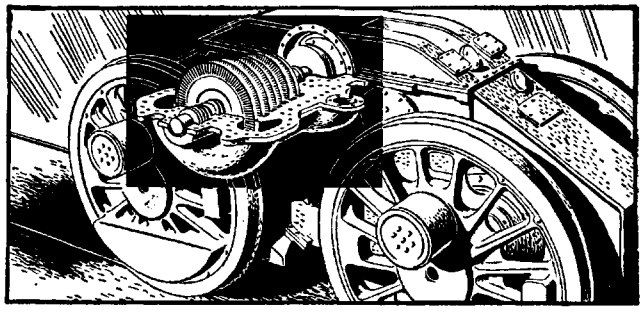
When your college days are over and you begin your career as a mechanical engineer, you will find the load capacity of Timken Bearings an asset of tremendous value in designing machines of any type. You will always know a Timken Bearing by the trade-mark "TIMKEN" stamped on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio.

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF
TAPERED ROLLER BEARINGS

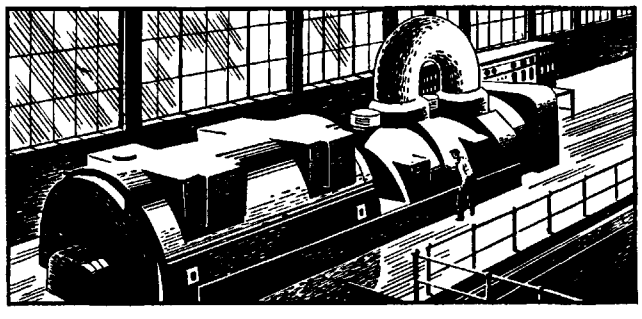


This Newest Locomotive
is Powered Like a Battleship

LONG AGO successfully developed by Westinghouse for ocean vessels, the *steam turbine* has now been harnessed as a brand new type of smooth, efficient motive power for modern railroad locomotives.



THE WESTINGHOUSE steam turbine in the Pennsylvania Railroad's new direct-drive locomotive is *no bigger* than a household electric refrigerator—yet it will haul long passenger trains with ease.



THE POWER-PACKED locomotive turbine is a descendant of giant Westinghouse turbines which generate much of the electricity used today. The great expansion of electric power began with these turbines.

THE VELVETY FLOW of power from this 6,900 horsepower *steam turbine* locomotive will make trains run with extra smoothness and is a major contribution to finer transportation for the future.

THE RAILROADS are developing a dazzling new kind of transportation for the future. The latest and most dramatic improvement is *steam turbine* power, which gives the Iron Horse "new lungs."

To help produce this new locomotive, the Pennsylvania Railroad, a long-time pioneer in transportation improvements, turned to Westinghouse and the Baldwin Locomotive Works. Working as a team, these companies have produced this latest in a great line of steam locomotives—descended from "Old Ironsides," built by Matthias Baldwin in 1832. *Westinghouse Electric & Manufacturing Company, Pittsburgh 30, Pennsylvania.*

Westinghouse
PLANTS IN 25 CITIES OFFICES EVERYWHERE

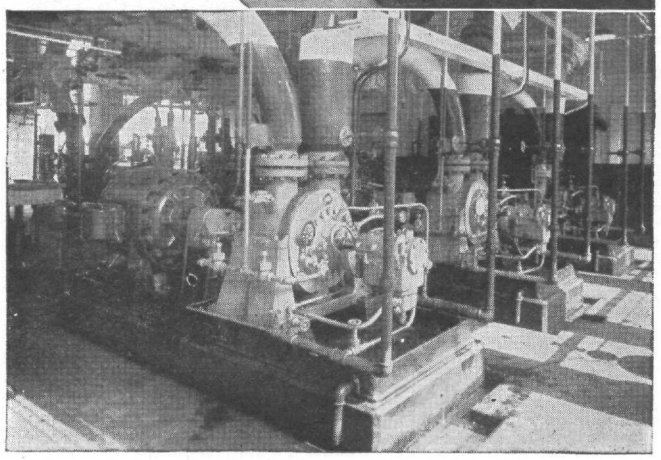
Westinghouse presents:* JOHN CHARLES THOMAS—*Sunday 2:30 pm, EWT, NBC

Clark 3000 BHP Steam "Angles" in Union Oil Company Refinery

Achievements in the Field

TWO Clark 3000 BHP Steam "Angles" and three 1000 BHP Gas-Driven "Angles" in Union Oil Co., at Oleum, Calif. . . . are serving in two important ways in making Hi-Octane gasoline.

Gasoline is being converted into Toluene by Catalytic cracking. The 2 Clark 3000 BPH Steam-Driven "Angles" furnish compressed air to burn coke, tar and asphalt from the catalyst keeping it in efficient operation. A gas residue is then compressed by the 3 Clark 1000 BHP super-charged gas-driven "Angles" to recover 8 to 15 additional gallons of highest grade gasoline per 1000 ft. of residue gas.



Battery of Pacific Type HV Centrifugal Pumps

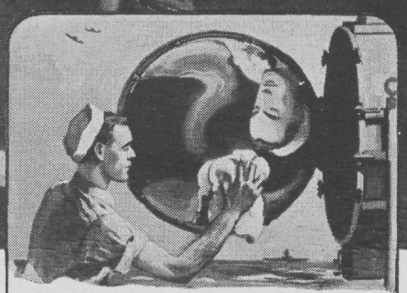
This battery of Pacific Type HV centrifugal pumps are delivering peak efficiency in refinery stabilizer reflux service. Type HV handles extremely hot or sub-zero liquids at low pressures, with speeds up to 3600 r.p.m., capacities 100 to 3000 g.p.m. and differential pressures up to 325 p.s.i. It is one of the many types of high precision pumps designed and built by Pacific.

In pump engineering achievements, Pacific has always anticipated and met the requirements of industry and takes pride in its long list of "firsts" in design, methods and construction.

CLARK BROS. CO., INC.
OLEAN, NEW YORK

PACIFIC PUMPS, INC.
HUNTINGTON PARK, CALIFORNIA

"Two of the Dresser Industries"



Keeping Navy searchlight reflectors spotlessly clean is an unending job. The Haynes Stellite alloy, from which many reflectors are made, is so hard that constant cleaning and polishing will not mar its surface.

LIGHT ON THE RISING SUN

UNCLE SAM'S NAVY has the most efficient searchlights on the Seven Seas. They are so powerful that one of them measuring 24 inches across can shoot a beam of light through 23 miles of inky darkness.

The reflectors of these searchlights are made of an alloy perfected and produced by HAYNES STELLITE COMPANY, a Unit of UCC.

The Navy is using this Haynes Stellite alloy for several reasons. It will not shatter from shock of gunfire. It has high resistance to corrosion by salt air, salt spray, powder and sulfur fumes. It withstands the terrific heat of the arc light—and hot particles of copper and carbon from the electrodes do not cause it to pit and lose its reflectivity. Searchlight reflectors are indicative of the many applications to which Haynes Stellite alloys—with their unique combinations of properties—can bring more efficient performance.

Haynes Stellite alloys have long been used for scientific mirrors, surgical and dental instruments and other equipment requiring great resistance to corrosion, wear and heat. Unending research by UCC is constantly adding to the variety of these alloys. They can be produced in many exacting shapes—in quantity—and delivered ready for assembly without further finishing.

Consulting engineers, production managers, educators and designers are invited to send for booklet P-3 describing the properties of Haynes Stellite alloys.

BUY UNITED STATES WAR BONDS AND STAMPS

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30 East 42nd Street UCC New York 17, N. Y.

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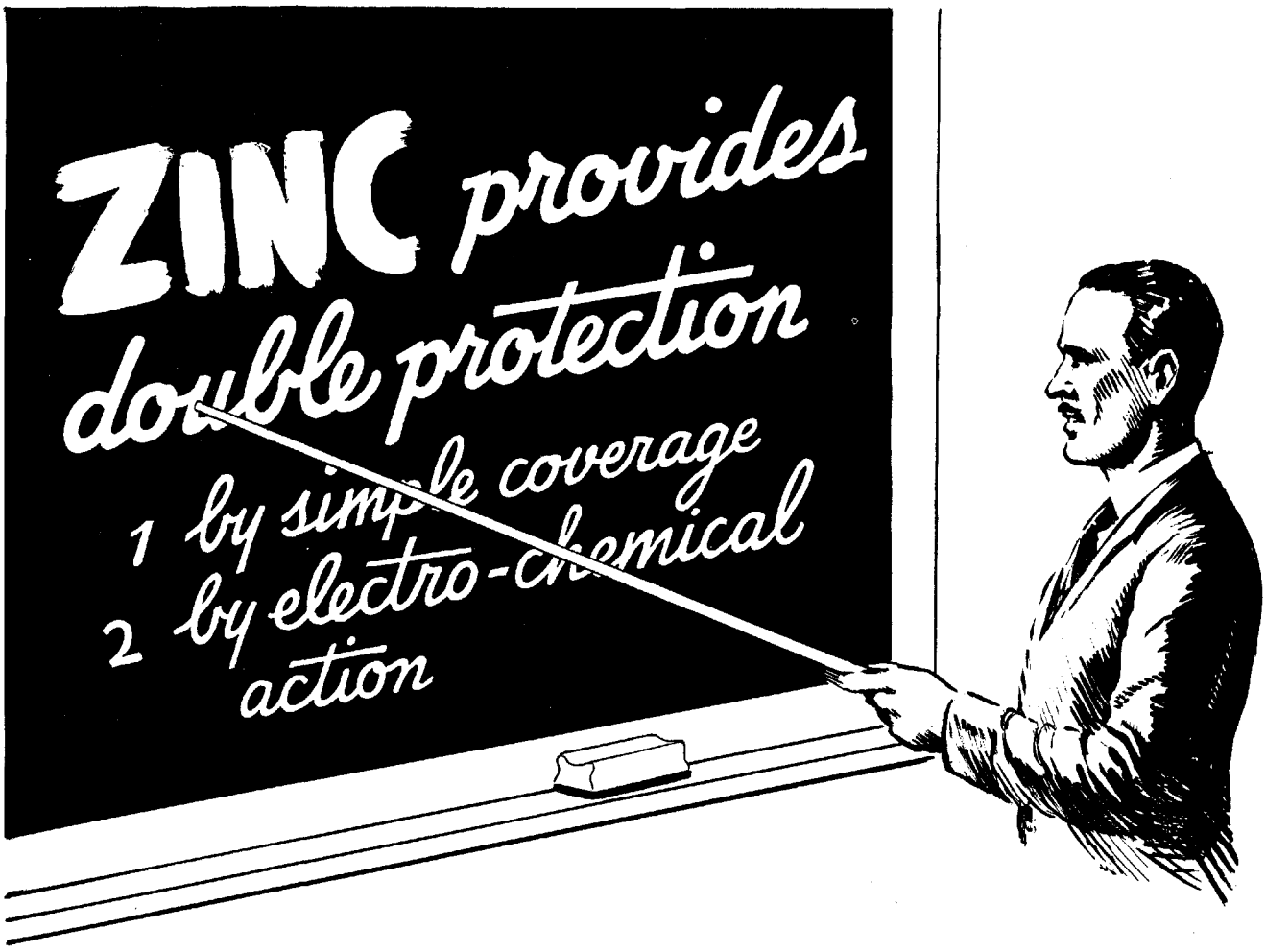
INDUSTRIAL GASES AND CARBIDE—The Linde Air Products Company, The Oxweld Railroad Service Company, The Prest-O-Lite Company, Inc.



Yes, zinc does double duty when applied to metals. It gives mechanical protection, with a sheath of rust-resistant metal; the durability depends on the thickness of the zinc. Zinc is also a rust inhibitor—it literally "stops rust before it starts", through electro-chemical action. The U. S. Bureau of Standards says Zinc is "by far the best" protective metallic coating for rust-proofing iron or steel.

Lifetime Galvanized Roofing

With reasonable care, galvanized (zinc-coated) roofing will last a lifetime. Its care is a simple matter—a few precautions taken at the right time is all that is necessary. These are fully described in a booklet, "How to Make Galvanized Roofing Last Longer", which will be sent free to anyone upon request. A post-card will do—send it today.

AMERICAN ZINC INSTITUTE
INCORPORATED
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Yank with his stabilized tank. See page 10.

—Courtesy Westinghouse.

Our Frontispiece

Setting the Rising Sun.

—Courtesy General Electric

ERNEST GRABILL, *Editor* ROSELLA HORINE, *Bus. Mgr.*

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